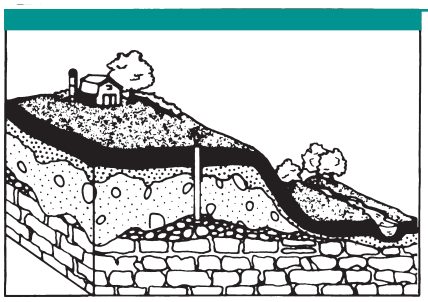

Soil Facts

Phosphorus Management for Land Application of Biosolids and Animal Wastes

Land application is a viable and environmentally sustainable way to handle and reuse many products. Animal wastes, municipal biosolids, industrial residuals, and agricultural by-products all contain valuable nutrients and organic matter that can be beneficially reused for crop production in a land application system. This publication addresses nutrient management concerns as they relate to land application, with a focus on phosphorus application and its impact on the environment. Methods for reducing P loss from land application sites are presented as general guidance for managers of land application systems, who must be knowledgeable of regulatory issues and permit restrictions as they relate to phosphorus and nutrient management.

Table 1. Definition of Key Terms

Term	Definition
Sludge	Separated materials collected during a treatment process
Residuals	The term typically used for sludge from an industrial process. Unless otherwise noted, used here to describe collectively animal waste, residuals, biosolids, and agricultural by-products
Biosolids	The term used for sludge from a municipal (domestic) wastewater source that has undergone digestion and treatment to meet land application regulations
Eutrophication	The natural aging process of water bodies as they accumulate sediment and nutrients, and plant and algae growth increases in the water. Eutrophication can be exaggerated with inputs from human activities (point and nonpoint source pollution)
Point source pollution	Pollution from a defined source or outlet, such as a pipe
Nonpoint source pollution	Pollution from a diffuse source, not easily identified, such as stormwater runoff or agricultural runoff
Phytase	An enzyme that can increase the digestibility of phosphorus in hog and poultry feed

Introduction

In North Carolina and the southeastern U.S., a considerable amount of organic waste is generated as residuals (sludge from industrial processes), biosolids (sludge from municipal wastewater treatments systems), and animal waste. Land application of such organic waste is a common practice. Regulations for these applications are typically developed and managed through a state's pollution control agency, and possibly

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